



# *REPORT TO THE CONGRESS*

## **Need To Consolidate Responsibility For Automatic Digital Network (AUTODIN) Terminals**

B-169857

Department of Defense

***BY THE COMPTROLLER GENERAL  
OF THE UNITED STATES***

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JULY 1977



COMPTROLLER GENERAL OF THE UNITED STATES  
WASHINGTON, D.C. 20548

B-169857

To the President of the Senate and the  
Speaker of the House of Representatives

This is our report on the need for the Department of Defense to consolidate responsibility for Automatic Digital Network (AUTODIN) terminals.

We made our review pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53) and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

We are sending copies of this report to the Director, Office of Management and Budget; the Director, Office of Telecommunications Policy; the Secretary of Defense; the Secretaries of the Army, Navy, and Air Force; and the Director, Defense Communications Agency.

A handwritten signature in black ink, reading "Thomas B. Staats".

Comptroller General  
of the United States

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ABBREVIATIONS

AFB	Air Force Base
ASC	AUTODIN switching center
AUTODIN	Automatic Digital Network
DCA	Defense Communications Agency
DOD	Department of Defense
GAO	General Accounting Office
JCS	Joint Chiefs of Staff
LDMX	local digital message exchange
TACCS	Telecommunications and Command and Control Systems

COMPTROLLER GENERAL'S  
REPORT TO THE CONGRESS

NEED TO CONSOLIDATE  
RESPONSIBILITY FOR  
AUTOMATIC DIGITAL NETWORK  
(AUTODIN) TERMINALS  
Department of Defense  
B-169857

D I G E S T

WHY THE REVIEW WAS MADE

The Department of Defense (DOD) spends about \$190 million annually on its Automatic Digital Network (AUTODIN), a records communications network.

Using various types of terminal equipment, AUTODIN subscribers can transmit and receive messages and data in the form of narrative, punched paper tape, data card, and magnetic tape.

The network serves about 1,500 subscribers, worldwide, including about 300 in the intelligence community. (See p. 1.)

GAO reviewed DOD's management and operation of AUTODIN terminals--also called communications centers--as part of its continuing review of communications activities. (See p. 1.)

FINDINGS AND CONCLUSIONS

No single organization in DOD has responsibility and authority for total planning and operation of the AUTODIN system.

--DOD's top communications manager is the Director, Telecommunications and Command and Control Systems (TACCS).

--The Joint Chiefs of Staff (JCS) also have responsibilities relating to AUTODIN.

--Below the Director, TACCS, the Defense Communications Agency--under JCS in the chain of command--is responsible for managing long-distance trunks and switches (except terminals and circuits on posts, camps, bases, or stations).

--Military departments are responsible for the above-mentioned terminals and circuits on individual installations. (See p. 2.)

As a result of this fragmented responsibility, existing and planned communications capabilities exceed requirements in many areas.

Problems associated with this type of organization are clearly exemplified in two DOD communications programs--a 6-year-old program to consolidate existing AUTODIN terminals and the program to automate AUTODIN communications centers. (See pp. 9 and 21.)

Consolidation of AUTODIN terminals

In July 1968 the Deputy Secretary of Defense directed that communications centers be consolidated where feasible. Each center would serve the needs of all DOD installations

in a given area, without regard to department or agency affiliation. (See p. 5.)

At the time of GAO's review, however, DOD had not consolidated terminals to the extent possible. In fact, the number of AUTODIN terminals (excluding intelligence terminals) had increased from 1,124 in December 1968 to 1,182 in June 1973. (See p. 9.)

DOD was operating as many as five of these costly communications centers on a single installation and planned to further increase the number, although consolidation into two centers, with resulting large savings, was possible.

GAO estimates that, with an effective consolidation program in the five areas reviewed, DOD could save \$2.6 million annually in communications center operating costs, including a net manpower reduction of 232 positions. (See p. 9.)

#### DOD communications center automation program

The program provides for developing local digital message exchange (LDMX) terminal facilities to automate many functions now done manually in communications centers. Each LDMX center could handle all records communications of many different users or installations within a geographic area. (See p. 7.)

The military departments have identified 103 installations to receive LDMXs at an estimated purchase cost of over \$100 million, not including cost of remote terminals. (See p. 21.)

GAO found that each military department had developed independently its own LDMX plan with little, if any, coordination between departments.

Also justifications supporting a number of these separately developed LDMX requirements were based on outdated and inaccurate data. As a result, LDMX facilities are being developed in excess of DOD's needs in certain geographic areas. When the data was updated and corrected, it was found that existing equipment could meet current and identified future needs. (See p. 21.)

In the areas GAO reviewed, DOD had installed or planned to install 15 LDMXs. In GAO's opinion, four would be sufficient. (See p. 21.)

Although information on operating costs of LDMXs is not available, large operating cost reductions could be achieved through operating fewer installations. (See p. 28.)

GAO believes there are inherent weaknesses in the AUTODIN network studies, initiated by JCS in May 1972, which will seriously impair their effectiveness. (See p. 17.)

Because of fragmented management and because past efforts to obtain coordination have not been effective, a single organization should be given authority, responsibility, and resources to manage the entire AUTODIN system, including terminals, as well as managing switches and long-distance circuitry.

The authority should extend to determining means of providing service after the needs of users are

approved at appropriate levels and to designating the entity responsible for operating and maintaining joint-user facilities. (See p. 29.)

In establishing a single manager, economies and uniformity available with a single, worldwide manager for the entire AUTODIN system should be considered. The preferred alternative is to extend the Defense Communication Agency's existing authority over AUTODIN to cover terminal management. This is consistent with GAO's findings and suggestions of two subcommittees of the House Committee on Armed Services quoted on pages 4 and 5. (See p. 29.)

A less preferred alternative would be to designate one military department to have management responsibility over improved, more effective terminal consolidation and automation programs, either worldwide or by such major areas as the continental United States, the Pacific area, Europe, etc. (See p. 29.)

The term "single manager" refers either to a single, worldwide manager or to single managers in major areas. (See p. 29.)

#### RECOMMENDATIONS

The Secretary of Defense should:

- Designate a single manager with the authority, responsibility, and resources necessary for managing the total AUTODIN system, including terminals.
- Direct the single manager to review and evaluate the potential for consolidating terminals and the requirements for automating centers on a comprehensive DOD-

wide basis and to take necessary implementing actions.

- Direct the single manager to freeze further implementation of automation plans, to the extent economically and operationally feasible, pending his review. (See p. 29.)

#### AGENCY ACTIONS AND UNRESOLVED ISSUES

DOD agreed that the existing management structure did create some difficulties but believed this might be the most realistic arrangement under the circumstances. DOD agreed also that there had been delays and deficiencies in consolidating and automating programs but believed that its current approach was viable and effective. (See p. 27.)

GAO recognizes that the current DOD effort will have some positive results but believes that the most effective solution is to centralize planning and control of resources for configuration of facilities to satisfy approved needs and requirements.

This would eliminate the current wasteful and duplicative military department planning efforts and the delays and problems incident to obtaining interservice coordination under the present management structure. (See p. 28.)

#### MATTERS FOR CONSIDERATION BY THE CONGRESS

GAO's findings and recommendations should be of special interest to two Subcommittees of the House Committee on Armed Services--the Armed Services Investigating Subcommittee and the Special Subcommittee on Defense Communications.

These Subcommittees have expressed concern over the fragmented and overlapping responsibility for communications within DOD, the

resulting inefficient and ineffective management of this vital function, and the need for a unified approach. (See p. 4.)



## CHAPTER 1

### INTRODUCTION

The Department of Defense (DOD) spends about \$190 million annually for equipment and services on its Automatic Digital Network (AUTODIN). AUTODIN is designed for the secure transmission, control, and storage of digital message and data traffic, i.e., record--as opposed to voice--communications.

The system has 19 AUTODIN switching centers (ASCs), worldwide, which serve about 1,500 terminals, including about 300 terminals used by intelligence community subscribers. Circuits called trunks interconnect ASCs. Circuits called access lines connect subscribers to one or more ASCs. At the subscribers' end of the access lines are input-output devices ranging from slow-speed teletype machines to high-speed processors. Throughout this report, "terminal" is used in its broad sense to equate with the term "communications center." In the context of this report, a communications center is defined as the input-output devices and other equipment, personnel, and facilities necessary to process, transmit, receive, reproduce, and distribute record communications for one or more users.

Through this network subscribers can transmit messages and data to and receive them from other subscribers. Depending on the type of terminal equipment, the messages and data are in the form of narrative, punched paper tape, data card, or magnetic tape. The messages and data are classified as routine, priority, immediate, and flash for priority precedence of transmission.

This report is concerned with the management and operation of the terminals.

### AUTODIN MANAGEMENT

In 1960 DOD established the Defense Communications Agency (DCA) to manage the Defense Communications System, of which AUTODIN is a part. DCA is a joint command, consisting of Air Force, Army, and Navy personnel, under the Joint Chiefs of Staff (JCS). Its fiscal year 1973 budget estimate was \$60.9 million and included requirements for about 1,300 civilian and 1,600 military personnel.

DCA has direct responsibility for the worldwide network of AUTODIN switches and interconnecting circuitry between switches, but it has no direct authority over the location, type, or number of AUTODIN terminals. That authority rests with the military departments, their major commands, other Defense agencies, and subscribers who operate AUTODIN terminals.

Each military department has a communications command to operate and maintain its communications resources, as follows:

Air Force--Air Force Communications Service  
Army--U.S. Army Communications Command  
Navy--Commander, Naval Telecommunications Command

The authority and responsibility of these commands differ, and none has total authority and responsibility over its Department's communications systems. For example, the Air Force Communications Service's authority does not include the Strategic Air Command's communications system. Similarly, at the time of our fieldwork, the U.S. Army Communications Command did not have operational responsibilities for the communications resources of all Army organizations. The Army is now incorporating all operational responsibility within that command. The Commander, Naval Telecommunications Command's responsibilities vary among installations. In addition, these communications commands do not have approval authority over requests by other commands within their respective Departments for communications facilities, but each Department relies on the using commands to determine its communications requirements.

The Chairman, JCS, is responsible for developing and validating AUTODIN requirements for the National Military Command System, and JCS are responsible for recommending major telecommunications requirements.

In 1970 DOD established the position of Assistant to the Secretary of Defense for Telecommunications<sup>1</sup> to consolidate communications management responsibilities which were previously dispersed among several assistant secretaries. His responsibilities included:

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<sup>1</sup>See footnote on next page.

- Advising the Secretary of Defense on all telecommunications matters for DOD and the National Communications System.
- Coordinating DOD efforts in the area of telecommunications.
- Reviewing DOD-validated telecommunications requirements to affirm their need and to recommend alternatives.

In 1972 the position was designated as Assistant Secretary of Defense (Telecommunications).<sup>1</sup> In 1974 the position was redesignated as the Director, Telecommunications and Command and Control Systems (TACCS)<sup>1</sup> and given additional responsibilities for command and control. Its fiscal year 1973 budget was about \$667,000 which covered all costs except military personnel. The budget also showed a required average personnel strength of 26 civilian and 4 military positions.

Previous GAO reports have discussed some of the problems caused by the diffused management of DOD communications and the unique relationship between DCA and the military departments. These are summarized below.

- "Improvements Needed in Management of Department of Defense Communications" (B-169857, Oct. 19, 1970) described the organizational arrangement under which no one office or person, except the Secretary of Defense, served as a focal point with authority and responsibility to coordinate all aspects of DOD communications. It also described the costly results attributable, at least in part, to the fragmented management. Subsequently, the office of the Director, TACCS, was established.
- "Benefits from Centralized Management of Leased Communications Services" (B-169857, Dec. 22, 1971) pointed out to the Secretary of Defense the absence of independent evaluation and coordinated control of leased communications services. We described the fragmented

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<sup>1</sup>References hereinafter to Director, TACCS, include predecessor positions.

and parochial management arrangements and some of the costly and duplicative results.

--"Reduction of Communications Costs Through Centralized Management of Multiplex Systems" (B-169857, Jan. 18, 1973) pointed out the absence of specific procedures for developing and managing systems, the need for a single manager, and the cost and other benefits that could be realized through centralized management.

#### CONGRESSIONAL INTEREST

The House Committee on Armed Services has expressed its concern for the effectiveness of DOD management of its communications. Its Armed Services Investigating Subcommittee, in a report dated May 10, 1971, concluded that:

"The fragmented and overlapping responsibility for communications within the Department of Defense has resulted in inefficient and ineffective management of that essential defense support function."

\* \* \* \* \*

"\* \* \* the deficiencies in Department of Defense communications were the result of mismanagement rather than from any lack of, or obsolescence of, equipment. The systems of the Department utilize the latest developments in communications technology. Similarly, its research and development programs continue to seek better solutions to the peculiar problems of military communications. The heart of the problem is in the management of communications at all levels of the Department."

The report recommended that:

"The Defense Communications Agency should be assigned management responsibility for the operation and maintenance of the entire [Defense Communications] system."

Similarly, the Special Subcommittee on Defense Communications of the House Committee on Armed Services, in a report dated October 12, 1972, concluded that, even though considerable savings and improved communications could be achieved by consolidating telecommunications centers, little had been done, automation of centers had been delayed, and excessive processing time continued to degrade performance. The report recommended that the Secretary of Defense (1) expedite the program for interservice consolidation of collocated telecommunications centers, (2) accelerate the program for automating major centers, and (3) initiate a Department-wide program to reduce the message-processing time.

In commenting on the automation program, the report stated:

"\* \* \* automation programs \* \* \* should be coordinated with the Department's [DOD's] program for consolidation of collocated communications centers in order to insure that maximum operational and financial benefits will be obtained from all communications assets."

\* \* \* \* \*

"Since the uncoordinated programs of the military departments have proven ineffective, it appears that a unified approach \* \* \* is imperative."

#### CONSOLIDATION PROGRAM

In July 1968 the Deputy Secretary of Defense issued a directive to the Secretaries of the military departments; the Chairman, JCS; and the Directors of Defense agencies. This directive established a long-range objective of integrating all functions of message and communications centers and, where practical, establishing a single facility to serve all collocated subscribers.

Later in 1968 the Deputy Secretary of Defense issued two more memorandums on the same subject. The first directed that "The Military Departments are to take immediate action to consolidate or eliminate communications/message centers, to the maximum extent feasible." (Underscoring supplied.)

The second memorandum clearly stated the consolidation program's intent as follows:

"Consolidation of communications centers and message centers into single telecommunications centers for specified areas should not be constrained by jurisdictional considerations where two or more services are located together. Rather the objective should be to have a single telecommunications center serving all geographically collocated subscribers, regardless of service or agency affiliation to the maximum extent feasible. Planning and implementation of this transition is to be carried out as a matter of priority." (Underscoring supplied.)

The memorandum requested that, to monitor this program, the military departments, JCS, and Defense agencies submit reports identifying all telecommunications and message centers, those considered for consolidation, and those already consolidated. It also requested quarterly reports regarding the centers consolidated or being considered for consolidation. It also directed the addressees of his original memorandum to forward it to their subordinate commands, which apparently had not been done in the 6 months between memorandums.

In 1970 a new Deputy Secretary of Defense also urged interservice consolidation. He directed immediate consolidation of telecommunications centers, (message centers and communications centers) where two or more existed at a single geographic location.

#### JCS studies

In May 1972 the Director, TACCS, directed JCS to review the record communications requirements in selected geographical areas to identify sites for possible consolidation. The consolidation feasibility studies were to be completed by September 1, 1973. JCS designated a specific military organization to be responsible for the study in each area, and the Director, TACCS, told us that JCS had selected 53 areas for review.

In his memorandum the Director, TACCS, established the following criteria for selecting locations for possible consolidation.

- The facilities considered for consolidation were to be within a 10-mile radius.
- Two or more existing or planned communications computer processor facilities must be combined into a single facility at one location.
- The degradation in speed of service for routine precedence messages would be no more than 10 percent with no degradation in processing higher precedence traffic.
- The total savings for each consolidation must result in a reduction of 10 or more personnel or more than 20 percent of total operating costs (excluding charges allocated to subscribers for costs of ASCs and trunking--referred to as AUTODIN backbone charges) for any one of the facilities under consideration.
- The survivability and reliability of the facilities must not be degraded to a level unacceptable in the opinion of JCS.

#### AUTOMATION PROGRAM

DOD's automated telecommunications center concept--commonly referred to as local digital message exchange (LDMX)--envisioned a communications processor and remote terminals in lieu of multiple AUTODIN terminals. The main transition from the present practice of multiple AUTODIN terminals is to (1) centralize message-processing functions at the LDMX, (2) remove the individual AUTODIN connections at the present terminals, and (3) provide the end user with only the basic input-output devices (remote terminals) required for its mission.

LDMXs will receive messages from ASCs and automatically route them to the appropriate remote terminals. The process would be reversed for messages sent from remote terminals to ASCs. These remote terminals may be on base or off base (it is technically feasible to locate them several hundred

miles from LDMXs) and a single LDMX may be able to serve numerous remote terminals at different military installations.

The advantages of the LDMX concept over the present practices are that LDMX will eliminate much of the manual message processing and will provide faster writer-to-reader service. Another feature of automation is that telecommunications center personnel will not have to convert written draft messages to communications media (punched paper tape, punched cards, or magnetic tape) because the messages will be converted by means of optical character-reading equipment. The LDMX will also automatically address a high percentage of messages and thereby will reduce the tedious task of manually searching for the addressees' routing indicators and entering them on the messages.

#### SCOPE OF REVIEW

We made our review at the offices of the Director, TACCS, and JCS, Washington, D.C.; DCA Headquarters, Arlington, Virginia; Air Force Communications Service Headquarters, Richards-Gebaur Air Force Base, Missouri; U.S. Army Communications Command, Fort Huachuca, Arizona; Commander, Naval Telecommunications Command, Washington, D.C.; and 51 military and contractor locations in California, Hawaii, Virginia, Maryland, and Washington, D.C.

We obtained data on DOD communications management and examined documents and records pertaining to the consolidation and automation programs. We discussed the capabilities of the present and planned equipment with DOD officials at the various headquarters and installations.



## CHAPTER 2

### LIMITED EFFECTIVENESS OF CONSOLIDATION PROGRAM

Near the beginning of the consolidation program in December 1968 DOD was operating 1,124 AUTODIN terminals. In June 1973, 4-1/2 years later, 1,182 terminals were in operation, not including terminals being used by intelligence community subscribers. The consolidation program has not reduced the number of AUTODIN terminals, we believe, largely because interdepartment and intradepartment consolidation of AUTODIN terminals in the same geographic areas has not been done to the extent possible.

In our opinion, the consolidation program's failure is due primarily to the absence of a single entity, except for the Secretary of Defense, with sufficient authority and resources to integrate the requirements of the military departments, their major commands, and the Defense agencies. Responsibility for communications management is fragmented between the Director, TACCS; DCA; JCS; the military departments; and individual commands within the military departments. (See p. 1.) We recognize that the ongoing JCS studies have not been completed and that such studies could be effective, if properly implemented. However, we believe that there are inherent weaknesses in the study approach that will limit the studies' effectiveness.

### CONSOLIDATION OPPORTUNITIES NOT EFFECTED OR NOT REALIZED PROMPTLY

Had the military departments, over the past 6 years, pursued a vigorous intradepartmental and interdepartmental consolidation program at the locations we reviewed, DOD could have eliminated 27 communications centers without a significant degradation in speed of service and thereby could have reduced operating costs by about \$2.6 million annually. (See exhibit A.)

We recognize that during our review decisions or plans were made to consolidate some of the terminals we were examining. For instance, we recommended to the Navy in November 1972 that 12 communications centers in the San Diego area be consolidated into two centers. In March 1974 we were told that five centers had been eliminated at an annual savings of

about \$460,000 and that the Navy's goal was to continue consolidations until there were only two centers in the area. These actions reflect a responsiveness to the goal of consolidation. However, it took almost 6 years from the date of the Deputy Secretary's directive to bring about the improvement.

We based our analysis of the potential for consolidation on our evaluation of (1) the volume of message traffic, (2) the proximity of the terminals to each other, (3) the mission of the activity being served as it affected the need for rapid service, and (4) the views of local DOD communications officials.

For example, at Travis Air Force Base (AFB), a Military Airlift Command installation, five communications centers were in operation when we began our review. The annual cost of operating these centers was \$1,408,300. We concluded that two centers could meet the needs of the entire base and that annual savings of \$312,200 could result.

The use of each of these five centers was as follows:

Communications center	Terminal speed (bauds) (note a)	Estimated recurring annual savings or loss (-)	Percent of use (note b)			
			Before consolidation		After consolidation (as proposed by GAO)	
			Send	Receive	Send	Receive
Base supply	1,200	\$ 78,200	4.9	4.5)	-	-
				)		
Base communications	1,200	-40,000	22.2	43.1)	27.0	48.5
Passenger reservation center	1,200	103,300	7.3	7.4)	-	-
				)		
Base airlift command post	150	210,700	13.2	63.2)	-	-
				)		
22d Air Force command post	1,200	-40,000	2.4	68.8)	11.0	92.5
		<u>\$312,200</u>				

<sup>a</sup>Baud is generally the number of bits (contraction of the term "binary digit") a second that can be processed by the terminal.

<sup>b</sup>Based on average traffic sent and received during the period July to December 1972 divided by the engineered capacity of the terminal.

The terminal use data presented above and the data in the example on page 14 were developed with DCA and were based on (1) the average monthly traffic sent and received by each terminal and (2) the terminal's engineered capacity determined by DCA.

DCA computes a terminal's engineered capacity on the basis of an operating period of 12 hours a day, 24 days a month, even though most terminals operate continuously (24 hours a day, 30 days a month). According to a DCA official, the reason for using the shortened period is that detailed analysis has shown that message traffic does not flow evenly over the entire 24-hour operating period. In fact, about 70 percent of a terminal's daily volume of traffic is sent and received during an approximate 12-hour period. DCA therefore computes terminal capacity for the maximum amount of traffic that can be processed by a given terminal during the approximate 12-hour busy period and not for the entire operation period.

Although we do not take exception to the method used, there is considerable potential for growth beyond the engineered capacity determined by DCA. Traffic can be expanded considerably beyond the computed capacity without seriously impairing service on this "store and forward" network. This is particularly important as the projected use under this method approaches 100 percent.

We discussed both examples (pp. 10 and 14), as well as the use for all consolidations proposed in exhibit A, with DCA officials. They told us that they would not approve such consolidations without actual engineering analyses but that, on the basis of their limited review of traffic loads, consolidation appeared to be feasible. Thus, in the above example, if the base communications center served the base supply center, the combined traffic, which we computed as averaging 445,412 lineblocks<sup>1</sup> sent and 612,036 lineblocks received a month, is within the capacity of the 1,200-baud facility. Similarly, if the 22d Air Force command post served the passenger reservation center and base airlift command post, its combined traffic, averaging 168,096 lineblocks sent and 1,142,424 lineblocks received a month, is within the capacity of the 1,200-baud facility.

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<sup>1</sup> Lineblock is a grouping of bits (generally 672) into which the message is divided for processing through AUTODIN.

The base supply terminal became operational to send and receive its own data card traffic in October 1971, over 3 years after the initiation of the consolidation program. Before this terminal was installed, base supply used a courier service from the base communications center to meet all of its record communications requirements. This courier service is still used for any base supply narrative messages or whenever the base supply terminal is inoperative. We were told that no major problems had occurred when this procedure was used. Travis could save \$78,200 (including \$4,200 in leased-equipment costs, \$4,000 in amortization of Government-owned equipment, and \$70,000 in manpower costs<sup>1</sup>) annually by closing the base supply terminal and using the courier service for all traffic. (See exhibit A.)

Also in October 1971 the passenger reservation center terminal was upgraded to provide a faster data-card capability. The terminal is only 100 yards from the 22d Air Force command post and about 500 yards from the base communications center which presently handles the passenger reservation center's narrative traffic needs.

We believe that, because of its close proximity, the 22d Air Force command post could provide the passenger reservation center with a service fast enough to meet its traffic requirements. We were told that this arrangement had been used, without any problems, for 5 months during the terminal's upgrading. This consolidation would result in annual savings of about \$103,300, consisting of \$4,200 in leased-equipment costs, \$9,100 in amortization of Government-owned equipment, and \$90,000 in manpower costs. (See exhibit A.)

The base airlift command post communications center serves the 60th Military Airlift Wing command post. This terminal is only 500 yards from the 22d Air Force command post communications center. Analysis of traffic showed that almost every message received by one communications center was received by the other, most messages being addressed to both commands.

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<sup>1</sup> Throughout our review, we based annual manpower costs on \$10,000 a man. DOD had used this figure, as well as higher figures, in estimating communications manpower costs. We used it as a conservative estimate since actual costs were not readily available.

A high-level Air Force official agreed that the base airlift command post terminal could be physically and functionally consolidated with the 22d Air Force command post, which would eliminate the need for a pneumatic tube to connect the two locations, as was proposed in an August 1972 Travis AFB plan. This would result in annual savings of \$210,700, consisting of \$3,600 in leased-equipment costs, \$7,100 in amortization of Government-owned equipment, and \$200,000 in manpower costs. The net savings to the Government from consolidating the five centers into two would be \$312,200 after allowing for additional personnel necessary to man the consolidated centers. (See exhibit A.)

Communications officials at Travis agreed that the base communications center and the 22d Air Force command post center could serve the needs of the entire base but said that they lacked the authority to direct the various Military Airlift Command's operating commands to make this consolidation. Each center was operated by a different activity, and there was no single manager on the installation with the resources and authority to effect consolidation.

After we started our review, plans were made to consolidate some terminals. Travis AFB submitted a plan to consolidate the base airlift command post terminal into the 22d Air Force command post terminal, in compliance with an Air Force regulation to consolidate command posts, and to use a pneumatic tube between the terminals.

In February 1973 the Air Force announced that all base supply terminals supporting Military Airlift Command units would be deactivated. Travis AFB planned to deactivate its supply terminal in April 1973 and to use the courier service from the base communications center.

The Air Force had not decided the status of the passenger reservation center terminal by the end of our review. However, Travis AFB had started a study of the feasibility of consolidating this terminal.

As another example, Andrews AFB was operating seven AUTODIN communications centers and one ASC (with two service terminals) at the time of our review. We did not review two of the seven Andrews AFB centers that served special users.

Since 1970 Andrews AFB communications officials have developed different plans to consolidate each of the five remaining communications centers. However, it wasn't until after we began our review that plans to consolidate three of the five centers were approved. The consolidated center was to become operational in October 1973. We concluded that, in addition to these planned consolidations, the other two centers could also be consolidated, which would result in annual savings of \$235,900.

The use of the five terminals was as follows:

Communications center	Terminal speed (bauds)	Estimated recurring annual savings	Percent of use (note a)			
			Before consolidation		After consolidation (as proposed by GAO)	
			Send	Receive	Send	Receive
Base communications	2,400	\$ (b)	11.2	43.0)	24.4	96.9
Air Force Systems Command	2,400	(b)	12.6	15.9)		
				)		
				)		
				)		
89th Military Airlift Wing	1,200	(b)	0.2	12.3)		
Naval air facility	75	179,300	4.4	22.9)		
Aeronautical station	150	<u>56,600</u>	3.1	10.7	(c)	(c)
		<u>\$235,900</u>				

<sup>a</sup> See p. 10 for discussion of use computation and p. 11 for our comments on the capacity under this method when the projected use approaches 100 percent.

<sup>b</sup> The Air Force approved a plan to consolidate these centers into a new base telecommunications center.

<sup>c</sup> Consolidated use not determinable; however, aeronautical station traffic would not significantly increase service terminal use. (See p. 16.)

Our evaluation showed that (1) the naval air facility terminal could be consolidated with the base communications terminal and (2) the aeronautical station terminal traffic could be served by the ASC service terminals, as described below.

The naval air facility terminal is on the east side of Andrews AFB about 3.2 miles from the base communications terminal. It handles all narrative message traffic for

naval and Marine Corps activities. However, its card traffic requirements are already handled by base communications via a naval courier service operating twice a day between the two locations.

Considering the terminal's low use and the small number of immediate messages it handled (1.1 percent and 4 percent for outgoing and incoming traffic, respectively), the terminal's continued operation appears unwarranted. According to an interservice study, base communications could absorb the traffic load without any increase in costs if the naval air facility were to obtain a copy machine to meet its reproduction needs. We believe the base distribution system could be used to pick up and deliver priority and routine precedence messages between the naval air facility and base communications. This delivery system should adequately meet requirements for messages of priority (during normal duty hours) and routine precedence.

We believe that, to meet the time constraints for immediate messages and for priority messages received or sent after normal duty hours, and recognizing the very small volume of traffic involved, the naval air facility could arrange for timely pickup and delivery of the messages at a nominal additional cost.

If base communications served the naval air facility, in addition to processing traffic for the 89th Military Airlift Wing and the Air Force Systems Command, its combined traffic, averaging 760,144 lineblocks sent and 1,246,656 lineblocks received a month, would be within the capacity of a 2,400-baud terminal, as indicated previously. Consolidating the naval air facility terminal with base communications would result in annual savings of \$179,300, consisting of \$7,800 in leased-equipment costs, \$1,500 in supplies, and \$170,000 in manpower costs. (See exhibit A.)

We were subsequently told that manpower reductions required eliminating the naval air facility terminal. Current plans call for the Naval Communications Station, Washington, D.C. (over 5.5 miles away), to provide record communications service (also by courier) to the naval air facility. However, it appears that the Andrews AFB communications center (3.2 miles away) would provide a less costly and more feasible alternative.

The other terminal that can be eliminated is used by the aeronautical station to provide communications support to the U.S. airborne fleet. Although the aeronautical station's traffic volume is too small to warrant a separate terminal, its high percentage of precedence traffic necessitates close proximity to a terminal.

We believe that, with ASC and the aeronautical station collocated in the same building, ASC's service terminals could provide the service. ASC service terminals are used to correct problems in message transmission and to process message traffic for staff elements. The aeronautical station's traffic would require less than 7 percent of the service terminal's capacity. Therefore we believe the ASC service terminals could absorb the aeronautical station's traffic without its interfering with the terminals' primary functions.

This use of service terminals is not unique. For example, service terminals at the Fort Detrick ASC handle all secure traffic for the base. They also process all messages of high precedence after normal duty hours. Further, we were told that an Army consolidation study had concluded that it was feasible for the Syracuse ASC service terminals to handle all message traffic for its host base, Hancock Field. The Army projected recurring annual savings of about \$140,000.

Using service terminals and eliminating the aeronautical station's AUTODIN center would result in annual savings of about \$56,600 in leased-equipment and manpower costs. (See exhibit A.)

Air Force communications officials at Andrews AFB agreed with our conclusions but said they had no authority to adopt our recommendations. The Air Force could not require the Navy to use the base communications terminal. ASC service terminals could not be used without DCA's approval. DCA had previously denied approval for Andrews ASC service terminals' processing aeronautical station traffic.

Similar analyses at other locations we reviewed further illustrated the limited effectiveness of the consolidation program. (See exhibit A.)



## INHERENT WEAKNESSES IN JCS STUDY APPROACH

Although the JCS studies (discussed on p. 6) are a step in the right direction and although we recognize that the studies, scheduled to be completed in September 1973 are still going on, certain weaknesses exist in the JCS study approach that will preclude assurance of a meaningful consolidation program.

- Since these studies are being made by the military departments, the parochialism and lack of cooperation evidenced in previous consolidation efforts could diminish their effectiveness.
- While studies are in progress, the departments are developing terminal facilities which may not be compatible with an optimum automated configuration for each geographic area.
- Some geographical areas where consolidations could be made were not designated for study by JCS.
- No mechanism has been provided for a continuing consolidation program after the studies are completed.

Throughout our review, we noted a lack of cooperation and a recurring parochial emphasis by the military departments which, in our opinion, diminish the effectiveness of the JCS studies. For example, in the Sacramento, California, area, the Air Force was told to make the JCS study. McClellan AFB had an automated communications center in operation that had an excess capacity and was capable of accommodating additional remote users. The Sacramento Army Depot communications center, about 8 miles away, did not have such a capability and was used, on the average, less than 2 hours a day.

In making the study, the Air Force requested operational information from the Sacramento Army Depot for evaluating the possibility of interservice consolidation in the Sacramento area. The depot gave the Air Force information on the depot's current traffic and stated that, within 90 days, a limited, automated facility was to be installed and be operational that could have three other Army Materiel Command installations as possible remote terminals. Therefore the information on the existing facility should not be considered as a

basis for consolidating the depot center with any other facility. We were told that the limited, automated facility was installed as scheduled.

In preparing its response to the Air Force, the depot anticipated future traffic expansion and determined that greater savings from consolidating similar operations in the data processing and telecommunications service was in accord with the Army's concept of consolidating communications on the west coast and that the new facility's operational design would be easily integrated into the Army's automation program. On the other hand the depot believed that consolidating several unlike organizations having different military missions was not possible without losing or degrading service. However, this information was not given to the Air Force.

Apparently because of the Army's reluctance to consider consolidation, the Air Force study team recommended that a full-scale automated communications center be provided at both the Army and the Air Force locations. This example illustrates, in our opinion, the lack of cooperation among military departments and the desire of each service to control its own communications.

As another example, a Navy group making the JCS study in the southern San Francisco peninsula area told us that there was a need for handling Navy message traffic through Navy communications facilities and Air Force traffic through Air Force communications facilities. Navy officials said that certain traffic, such as Z-grams released by the Chief of Naval Operations to Navy units, was for Navy eyes only. They could give us no convincing justification for prohibiting access to this type of information by the other military departments, but they told us that the other military departments had similar traffic for which they wanted to prohibit access by the Navy. We think that personnel at the communications centers, since they already are entrusted with highly classified information, could, with proper instructions, protect any necessary departmental classifications.

Also, we found that several departmental consolidation plans or recommendations involved service from terminals of the same military department more remote than terminals of another military department.

We believe that such parochial considerations can prevent realizing maximum benefits from the JCS studies.

In certain geographic areas, military departments have installed, or are installing, new sophisticated terminal facilities before completing the JCS studies. In the Norfolk, Virginia, area, for example, the Army, Navy, and Air Force continued developing separate communications facilities. The Navy has installed one sophisticated communications facility and is installing three others. The Army and Air Force are also upgrading their existing facilities and plan additional changes by fiscal year 1975.

Similar situations were occurring in the Oahu, Hawaii, and San Francisco Bay areas. (See pp. 23 and 24.)

In a letter to the Director, TACCS, dated November 21, 1972, we questioned the reasonableness of this ongoing development of sophisticated terminal equipment while the JCS studies were in progress. The Director, TACCS, replied on February 15, 1973, that "It would be unwise from an operational or economical view to arbitrarily halt all terminal upgrade or telecommunications center automation efforts while the area consolidation studies are in progress."

Of course, we do not recommend arbitrarily discontinuing all terminal upgrades or center automations. But when money is being spent in places which--at least prima facie--seem susceptible to the types of consolidations that are the DOD and JCS targets, prudent management would reevaluate these expenditures. We believe that under such circumstances present configurations should be frozen until it is decided--after fully considering existing plans to proceed with installing automated communications centers relatively soon (see ch. 3)--that it is economically and operationally advantageous to proceed with interim solutions. We stated in our letter to the Director, TACCS, that "It appears to us that the military departments may be prematurely incurring costs for \* \* \* systems which may not be compatible with future optimum configurations."

The Director, TACCS, also gave us each military department's reasons for continuing with its individual plans to upgrade existing facilities. In summary, the departments said that projected manpower savings resulting from implementing these improved systems would permit amortizing installation costs in a relatively short time at each location.

The Army and Air Force did not give us estimates of specific savings relating to large-scale automated centers. Although the Navy did give us such estimates, the savings the Navy claimed were for manpower reductions which were predicated on using automated message reproduction and distribution equipment that had not yet been developed. It is not known when this equipment will be available or what it will cost. Without such information and some experience in using the equipment, the actual cost impact can not be determined. If the matter were approached from a DOD-wide standpoint by some central authority, consolidated communications centers on an interservice area-wide basis would be even more economical.

Another weakness of the JCS studies was that they failed to consider all geographic areas where communications terminal consolidations were possible. The studies addressed only 53 geographic locations throughout the world although many more should be evaluated.

In the Washington, D.C., area, the JCS study was concerned with consolidating the communications requirements of the military departments in the Pentagon. At the time of our review, it had not considered consolidations at nearby military installations. For example, four centers at Andrews AFB could be consolidated into two at annual savings of \$235,900 and five centers at the Suitland Federal Center, 4 miles away, could be consolidated into one at annual savings of \$214,100. (See exhibit A.) In addition, the more sophisticated equipment planned for each of these centers appears uneconomical and unwarranted in view of less costly alternatives that could satisfy present and anticipated requirements. (See exhibit B.) Since a study of the entire Washington, D.C., area was not directed by JCS, the potential opportunities for consolidating a number of communications centers have not been considered.

A further weakness of the JCS approach is that no mechanism has been provided for a continuing consolidation program after the current studies are completed. A target date of September 1, 1973, was established for submitting the final reports of the consolidation studies, but the studies are still in progress. These studies are aimed at the problem as it currently exists; under implementing guidelines, the study teams will have no further responsibilities.

## CHAPTER 3

### NEED FOR COORDINATED PLANNING AND REALISTIC

#### EVALUATION OF REQUIREMENTS IN AUTOMATION PROGRAM

DOD's telecommunications center automation program is designed to increase the speed of record communications service to users by automating many functions now being done manually. However, DOD is developing and installing automated facilities in excess of its needs in certain geographic areas.

In those areas reviewed, we found that the three military departments had independently developed plans to install 15 automated communications centers. We believe, however, that DOD could eliminate up to 11 of the planned 15 centers by coordinating planning and by realistically evaluating the need for automated centers. (See exhibit B.)

The organizational structure described on page 1 has resulted in little, if any, coordination among the military departments in planning LDMXs to meet DOD requirements. The magnitude of the problem becomes apparent when the separate automation plans of the military departments are viewed in total and are considered in the light of directives requiring that communications needs of a given geographic area be addressed on an interservice basis. Together, the plans have identified 103 installations tentatively scheduled to receive LDMXs. The estimated purchase cost of the LDMX equipment required to automate these centers is over \$100 million, not including the cost of remote terminals.

Many centers, each capable of serving the record communications needs of a number of users and/or installations in a geographic area, are planned for the same geographic area. Our review indicated that DOD, by coordinated planning of automation requirements, could eliminate 6 of the 11 centers that we believe can be eliminated. (See exhibit B.)

We also found that justifications supporting a number of the planned automated centers were based on outdated and inaccurate data. Furthermore, some installations identified for automation already have communications equipment that is sufficient for their current and anticipated traffic requirements. We believe, therefore, that DOD, by realistically evaluating the need for automated centers, could eliminate

five additional planned centers in those areas we reviewed.  
(See exhibit B.)

## MILITARY DEPARTMENT AUTOMATION PLANS

Each military department has developed its own conceptual plan for automated communications centers.

### Air Force

The Air Force plan describes four general categories of centers: a manual system and moderate-, intermediate-, and large-capacity automated systems which differ mainly in the extent of message-processing automation. Most existing Air Force communications centers use manual or moderate-capacity automated systems.

The Air Force's June 1972 plan estimated annual leased-equipment costs for a large-capacity automated system to be about \$540,000. In addition, it estimated annual lease costs of between \$1,200 and \$48,000 for each remote terminal, depending on its capabilities.

Phase I of the plan calls for large-capacity systems at eight Air Force locations, with installation of the equipment scheduled for fiscal years 1975 and 1976. Phase II of the plan envisions that, during fiscal years 1976-79, 14 installations will be candidates for the large-capacity systems. In total, the Air Force has identified 27 potential locations to receive either an intermediate-capacity or a large-capacity system between fiscal years 1975-79.

### Army

The Army has developed the Army Telecommunications Automation Program outlining the basic concepts for automating and upgrading communications facilities. The plan defines groups of communications centers which differ in their capabilities and levels of automation. According to current Army estimates, purchase costs for equipment to automate these centers range from \$504,000 to \$736,000, if purchased after the first-year lease. These costs do not include the cost of remote terminals.

The Army intends to begin automating its communications centers in calendar year 1974. The Army has identified

47 installations or locations which may receive automated centers, of which 27 have been assigned planned operational dates between April 1974 and December 1979.

### Navy

The Navy's automation plan is concerned with two types of message requirements. The first is automating message processing for shore installations and the second is automating ship-to-shore communications. The May 1972 revised plan estimates the shore center's purchase cost, not including remote terminals, at \$1.7 million and the ship-to-shore center's purchase cost not including remote terminals, at \$3 million.

The plan identified 29 installations which are scheduled to receive automated centers between fiscal years 1971-77. The test facility in the Washington Navy Yard was installed in February 1971. Another system was installed in the Pentagon and became operational in December 1971.

### NEED FOR COORDINATING PLANS

In view of the large cost to purchase or lease LDMX equipment and the ability of this equipment to serve numerous remote terminals, planning should be thoroughly coordinated to keep the number of automated centers at a minimum. Officials from each military department's communications command, however, told us that their automation plans had not been coordinated with the other departments. As a result, the military departments were proceeding with plans for unnecessary and duplicative automation programs.

For example, the Army, Navy, and Air Force independently proceeded with automation programs on the island of Oahu. While these programs were in progress, the JCS team (Navy) studying the consolidation of communications requirements for Oahu submitted (in September 1972) its report. The report identified three alternative approaches. Two of the alternatives proposed two automated centers to serve the entire island. The third alternative proposed that each military department have its own center and remote terminals at each of its installations.

JCS guidance for the Oahu study said that "The plan should provide a minimum number of major telecommunications

facilities consistent with reliability and survivability requirements." A JCS official told us that the two alternatives proposing two automated centers to serve the entire island were conceptually sound and feasible. However, the military departments (1) did not agree on any of the alternatives, (2) referred the matter back to the JCS team for further study and analysis, and (3) proceeded with their independent installation programs.

On the basis of our review, it appears that two automated centers, rather than the six centers planned by the military departments, could effectively serve the needs of the entire island. This is consistent with the JCS study team's findings on alternatives for Oahu. Therefore the cost of unnecessary planning and equipment for automated centers could have been saved if the three military departments, through a coordinated planning approach, could have consolidated their automation requirements for Oahu. (See pp. 46 and 47 for further developments concerning the Oahu consolidation-automation program.)

#### NEED FOR BETTER REVIEW OF REQUIREMENTS

As noted above, the military departments' plans identify 103 installations as tentatively scheduled to receive automated centers. However, the justifications supporting some of the requirements for these centers contain outdated and inaccurate data, and many installations already have equipment which will meet their current and planned communications requirements.

For example, one of eight initial LDMXs programed by the Air Force during fiscal years 1975 and 1976 is for Travis AFB. A review of the requirements showed that existing equipment could adequately meet current and future requirements and that the automated center was not needed.

The Travis LDMX was justified on the basis of the following outdated or inaccurate data.

1. Improvements in message delivery and transmission times--The need for improvements in message-handling times was based on a traffic survey which showed that, for both transmitted and received traffic, the communications center was not meeting established standards. The automated center was proposed to



solve this problem. Since the main delay in transmitting messages is in converting the written copy to a record communications format, any improvements should be concerned with decreasing this delay. A primary means of doing this is through using optical character readers. The Travis plan envisions using such a device only after the proposed LDMX is installed. An optical character reader, however, can be used at the center, as indicated in the Travis plan, with existing equipment and without upgrading the center as proposed by the Air Force.

2. Reduction in the number of AUTODIN terminals--The justification showed five existing and three programmed AUTODIN terminals and stated that, if the plan was not implemented, more terminals would be needed. However, our analysis of the Travis AFB requirements showed that only two of the five existing terminals were needed. (See p. 10.) Two of the three programmed terminals have been canceled; the third has not been installed, pending a decision regarding its need.
3. Projection of future traffic requirements--The justification projected a 70-percent increase in monthly traffic between fiscal years 1968-71. However, our review of the traffic during the period July to December 1971 showed a decrease, rather than an increase, in traffic from the comparable fiscal year 1968 figure.
4. Reduction in the number of operating personnel--The justification projected a net manpower savings of 30 positions. However, our analysis of the savings available by consolidating the existing 5 terminals into 2 included a manpower savings of 28 positions. (See exhibit A.) These manpower savings, almost equal to those in the LDMX justification, are available without incurring the additional costs of an automated center.
5. Reduction in overall costs--The justification included a cost analysis comparing the existing system and planned improvements with the proposed LDMX and showed annual savings of over \$507,000 using the LDMX; however, (1) a planned improvement of the

existing system estimated to cost about \$540,000 annually has been canceled and (2) annual savings of about \$312,200 are available through consolidation without the LDMX. With these corrections to the Travis analysis, the LDMX would cost about \$345,000 a year more than the existing system.

Our analysis of plans for other automated centers similarly indicated a lack of coordinated planning and realistic evaluation of the need for automated centers and showed that, in some cases, LDMX equipment was not required to meet present and planned future needs. (See exhibit B.)

## CHAPTER 4

### CONCLUSIONS AND RECOMMENDATIONS

#### CONCLUSIONS

Although DOD, in 1968, established the objective of consolidating its communications centers to the extent feasible, efforts directed toward achieving this end have not been very effective. Interdepartmental and intradepartmental sharing of facilities in the same geographic area has not occurred to the extent possible, and an inordinate length of time has been required to achieve what little consolidation has been effected or planned.

DOD's comments on our findings are included as appendix I. In preparing this report we considered a two-page enclosure to DOD's comments providing details for one of the comments and therefore have not included it. DOD agreed that the existing management structure created some difficulties but believed that it might be the most realistic arrangement under the circumstances. DOD also agreed that there had been delays and deficiencies in consolidation and automation programs but believed that its current approach to the problem was viable and effective. Our evaluation of DOD's comments is included in appendix II.

We believe that the JCS studies, although not completed, could, if properly analyzed and forcefully implemented, provide a basis for a meaningful terminal consolidation-automation effort. However, we believe that there are inherent weaknesses in the JCS study approach that can seriously impair the studies' effectiveness. Our review of the results achieved to date did not provide grounds for anticipating decisive and precipitous changes in direction.

Our review also demonstrated that there had been a lack of coordination among the military departments in planning for automating centers in discrete geographic areas and an absence of realistic evaluations of the need for automating some of the planned centers. Consequently, DOD is developing and installing expensive automated facilities in excess of its requirements.

This report does not address the operating costs of the automated centers because of the absence of cost data. However, on the basis of our review, we believe that substantial operating-cost reductions could be achieved from operating fewer automated centers.

The limited effectiveness of DOD's consolidation program and the unnecessary planning and development of centers in its automation program are, in our opinion, direct results of the absence of a single entity (except for the Secretary of Defense) with the necessary authority and resources for complete management control of DOD's AUTODIN system. The existing structure divides managerial responsibility and authority among the Director, TACCS; JCS; DCA; the military departments; and Defense agencies and thereby dilutes the potential effectiveness of coordinated systems planning and implementation.

The current management arrangements are not practicable because, although DOD has given DCA responsibility for the AUTODIN system of switches and interconnecting circuitry, DOD has not authorized DCA to integrate requirements of the military departments and Defense agencies for the purpose of consolidating and automating AUTODIN terminals.

The Director, TACCS, was authorized to coordinate DOD efforts in the telecommunications area. The Director, having no line authority, is in the position of having to ferret out deficiencies and overlaps in the services' plans and having to engage the services in an adversary environment when parochial service views can be identified. An authoritative entity with servicewide system authority and responsibility could avoid these problems in the planning stage, which should be more effective than tackling the problems on a postplanning review basis. Whether the Director, TACCS, has sufficient staff and budget support to prove effective under these conditions is questionable.

We believe that, although the current effort will have some positive results, the most effective solution would be to establish centralized planning and control of resources for configuration of facilities to satisfy approved needs and requirements and thereby eliminate the current wasteful and duplicative military department planning efforts and the delays and problems incident to obtaining the needed inter-service coordination discussed in this report.

A single entity should be given the authority, responsibility, and resources necessary for managing the entire AUTODIN system, including AUTODIN terminals, as well as managing ASCs and long-distance circuitry. The authority should extend to the means of providing service after the user needs are approved at appropriate levels and to the designation of the entity to be responsible for operating and maintaining joint-user facilities.

We believe the single manager should be responsible for consolidating terminals DOD-wide with the objective of consolidating both intradepartmental and interdepartmental terminals wherever possible. This should be done in coordination with, and should recognize the objectives of, the automation program to insure maximum operational and financial benefits from the ultimate configuration.

In establishing a single manager, consideration must be given to the economies and operational consistencies available with a single worldwide manager for the entire AUTODIN system. The preferred alternative is to extend DCA's existing authority over AUTODIN to cover terminal management. This would be consistent with our findings and with the suggestions of two Subcommittees of the House Committee on Armed Services quoted on pages 4 and 5.

A less preferred alternative could be to designate one of the three military departments to have management responsibility over improved, more effective terminal consolidation and automation programs, either worldwide or by such major areas as the continental United States, the Pacific area, Europe, etc. The term "single manager" refers to either a single worldwide manager or to single managers in major areas.

#### RECOMMENDATIONS

We recommend that the Secretary of Defense:

- Designate a single manager with the authority, responsibility, and resources necessary for managing the total AUTODIN system, including terminals.

- Direct the single manager to review and evaluate the

potential for consolidating terminals and the requirements for automating centers on a comprehensive DOD-wide basis and to take necessary implementing actions.

- Direct the single manager to freeze further implementation of automation plans, to the extent economically and operationally feasible, pending his review.

## EXHIBIT A

## ESTIMATED SAVINGS POSSIBLE FROM CONSOLIDATING COMMUNICATIONS CENTERS

Area and installation	Communications center	Current annual cost (note a)	Annual savings from consolidation (note a) (increased costs(-))	Net manpower savings (increase(-))
Hawaii area:				
Central Oahu	Schofield Barracks	\$ 496,600	\$ 432,200	40
	Wheeler AFB	523,700	523,700	46
	<sup>b</sup> Kunia facility	<u>1,795,500</u>	<u>-269,600</u>	<u>-26</u>
		<u>2,815,800</u>	<u>686,300</u>	<u>60</u>
Hickam AFB	Military Airlift Command Post	209,700	209,700	17
	Aeronautical station	140,000	140,000	7
	<sup>b</sup> Base communications	<u>1,276,700</u>	<u>-40,000</u>	<u>-4</u>
		<u>1,626,400</u>	<u>309,700</u>	<u>20</u>
Washington, D.C., area:				
Andrews AFB	Aeronautical station	56,600	56,600	5
	<sup>b</sup> Andrews ASC	<u>(c)</u>	<u>-</u>	<u>-</u>
		<u>56,600</u>	<u>56,600</u>	<u>5</u>
	Naval air facility	179,300	179,300	17
	<sup>b</sup> Base communications	<u>404,200</u>	<u>-</u>	<u>-</u>
		<u>583,500</u>	<u>179,300</u>	<u>17</u>
Federal Center Suitland, Md.	National Weather Service	17,500	17,500	1
	Naval Oceanographic Office	197,400		
	Naval fleet weather	101,700		
	Naval intelligence processing system support activity (proposed)	<sup>d</sup> 431,500	730,600	53
	<sup>b</sup> Proposed telecommunications center	<u>-</u>	<u>-534,000</u>	<u>-35</u>
		<u>748,100</u>	<u>214,100</u>	<u>19</u>
Fort Detrick	Base communications	13,900	13,900	1
	<sup>b</sup> Fort Detrick ASC	<u>(c)</u>	<u>-</u>	<u>-</u>
		<u>13,900</u>	<u>13,900</u>	<u>1</u>
Norfolk-Hampton area:				
Langley AFB	Navigation Aids Communications Management Office	86,500	86,500	5
	<sup>b</sup> Base communications	<u>892,100</u>	<u>-</u>	<u>-</u>
		<u>978,600</u>	<u>86,500</u>	<u>5</u>
Dan Diego area:				
Coronado	<sup>e</sup> Naval Amphibious Base	628,100	50,300	4
Imperial Beach	<sup>e</sup> Naval Air Station	181,400	13,200	1
North Island	Naval Air Station, data processing	50,900	50,900	2
	Naval Air Station, supply	68,900	68,900	6
	<sup>b</sup> Naval Air Station, communications center	<u>985,200</u>	<u>-73,800</u>	<u>2</u>
		<u>1,914,500</u>	<u>109,500</u>	<u>15</u>
Point Loma and city of San Diego	Naval Electronics Laboratory	56,800	56,800	4
	Commander, Training, Pacific	270,200	240,200	23
	Naval Station	389,400	389,400	36
	<sup>f</sup> Commander, cruisers, destroyers, Pacific	558,000	-45,500	-5
	Marine Corps Recruit Depot	228,900	218,900	14
	Balboa Naval Hospital	27,100	27,100	2
	<sup>b</sup> Naval Communications Station	<u>693,100</u>	<u>-386,400</u>	<u>-22</u>
		<u>2,223,500</u>	<u>500,500</u>	<u>52</u>
San Francisco area:				
Travis AFB	Base supply	78,200	78,200	7
	<sup>b</sup> Base communications	<u>558,800</u>	<u>-40,000</u>	<u>-4</u>
		<u>637,000</u>	<u>38,200</u>	<u>3</u>
	Passenger reservation	103,300	103,300	9
	Base airlift command post	210,700	210,700	20
	<sup>b</sup> 22d Air Force command post	<u>457,300</u>	<u>-40,000</u>	<u>-4</u>
		<u>771,300</u>	<u>274,000</u>	<u>25</u>
McClellan AFB	9th Weather Wing	50,000	50,000	5
	Director, Materiel Management	118,300	118,300	10
	<sup>b</sup> Base communications	<u>1,191,400</u>	<u>-50,000</u>	<u>-5</u>
		<u>1,359,700</u>	<u>118,300</u>	<u>10</u>
	Cataloging and standardization	24,000	4,000	-
	<sup>b</sup> Comptroller center	<u>148,300</u>	<u>-</u>	<u>-</u>
		<u>172,300</u>	<u>4,000</u>	<u>-</u>
Sunnyvale	Air Force Plant Representative Office, Lockheed	33,200	33,200	2
	Naval Plant Representative Office, Lockheed	36,500	36,500	3
	<sup>b</sup> Satellite Test Center	<u>337,600</u>	<u>-50,000</u>	<u>-5</u>
		<u>407,300</u>	<u>19,700</u>	<u>-</u>
TOTAL		<u>\$14,308,500</u>	<u>\$2,610,600</u>	<u>232</u>

<sup>a</sup>Includes, when appropriate, cost of leased equipment, allocation for Government-owned equipment, manpower (based on estimate of \$10,000 per year per man), maintenance, leased circuits, and consumable supplies.

<sup>b</sup>Remaining center that will absorb consolidated traffic.

<sup>c</sup>Not available.

<sup>d</sup>Navy's estimated cost (as proposed in August 1970 plan) adjusted to reflect GAO manpower estimate of \$10,000 per year per man.

<sup>e</sup>Remaining remote terminal from Naval Air Station communications center.

<sup>f</sup>Remaining remote terminal from Naval Communications Station. This remote will also serve the naval station.

# EXHIBIT B

## LDMX REDUCTIONS POSSIBLE THROUGH INTEGRATION AND REALISTIC EVALUATION OF REQUIREMENTS FOR AUTOMATED COMMUNICATIONS CENTERS

<u>Geographic areas and military departments</u>	<u>Planned LDMX locations</u>	<u>Number of LDMXs planned</u>	<u>Tentative installation date (fiscal year)</u>	<u>Number of LDMXs needed</u>	<u>LDMX reductions possible</u>
Reductions possible through coordination of plans:					
Oahu, Hawaii:					
Navy	Naval Telecommunications Center, Camp Smith	1	1974)		
	Naval Telecommunications Center, Makalapa	1	1974)		
	Naval Communication Station, Honolulu	1	1975)	2	4
	Naval Telecommunications Center, Kunia	1	1975)		
Army	Fort Shafter	1	1975)		
Air Force	Hickam AFB	1	1977)		
San Francisco, California:					
Army	Oakland Army Base	1	1974)	1	1
	The Presidio	1	1975)		
Sacramento, Cali- fornia:					
Army	Sacramento Army Depot	1	1976)	1	1
Air Force	McClellan AFB	1	1977)		
		<u>10</u>		<u>4</u>	<u>6</u>
Reductions possible through better evalu- ation of requirements:					
Norfolk-Hampton, Virginia:					
Air Force	Langley AFB	1	1976)	None	2
Army	Fort Monroe	1	1975)		
Washington, D.C.:					
Navy	Federal Center, Suitland	1	1977)	None	2
Air Force	Andrews AFB	1	1979)		
Northern Cali- fornia:					
Air Force	Travis AFB	1	1976	None	1
TOTAL		<u>15</u>		<u>4</u>	<u>11</u>





OFFICE OF THE SECRETARY OF DEFENSE  
DIRECTOR, TELECOMMUNICATIONS AND  
COMMAND AND CONTROL SYSTEMS  
WASHINGTON, D.C. 20301

1 FEB 1974

Mr. Donald L. Eirich  
Assistant Director-in-Charge  
(C&DP Group)  
Logistics and Communications Division  
General Accounting Office  
Washington, D. C. 20548

Dear Mr. Eirich:

This is in response to your letter of September 10, 1973 to the Secretary of Defense regarding the draft report on the consolidation of responsibility for AUTODIN terminals (GAO Code 941003, OSD Case #3551).

I apologize for the delay in forwarding our comments, but the pressure of the budget review cycle and the need to complete our response to you on the effectiveness of AUTOVON service necessitated a delay.

The recommendations and comments contained in the report recognize a very real problem which the Department is addressing on a positive basis. The lack of significant progress in the interservice consolidation area in the initial two-to-three-year period after the Deputy Secretary of Defense memoranda is acknowledged. It has been only in the past two years that meaningful and responsive results have been realized. A portion of the approach we are using to attack this problem area is outlined in the subparagraphs below. Our detailed comments and reactions to the draft audit statements and recommendations are also provided. Where appropriate the comments are keyed to the page and paragraph numbering of the draft report.

1. It has become evident that the consolidation of large telecommunications centers must of necessity often be associated with the automation of the functions and processes to be consolidated. The human-intensive and time consuming nature of the message handling processes are such that major gains in productivity and personnel savings are achievable through automation. Therefore, rather than just consolidate large numbers of personnel doing the same or similar tasks it was decided to

utilize our automation efforts as a supporting effort to achieve these gains while reducing the manpower associated with many routine repetitive tasks. As indicated below, this close relationship between programs also provides both a management and resource overview designed to preclude unnecessary duplication of efforts or facilities within the same geographical area.

2. The overview and associated controls over the program are currently being achieved by three prime elements; a master automation plan for each service, the OASD(T)/OJCS directed interservice consolidation studies, and the budgetary review cycles.

a. The development of a master automation plan describing the hierarchical structure of the Service automated terminal efforts, the scope, cost, operational and technical nature of the facilities to be installed at specific geographical locations is proving to be an effective operational and fiscal management tool. These plans, after initial review and approval, are required to be updated annually and also provide for the post-installation audit of resource expenditures, requirements and savings. Unless a Service has a master plan approved by this office, it is required to submit a request for each automation project in accordance with DoD Directive 4630.1 procedures, regardless of dollar value.

b. The interservice consolidation study effort, with which your staff is familiar, is producing results and will be discussed in greater detail herein. Where a Service is determined to be the predominant user, or host in a specific area, it is expected that the subsequent consolidation of facilities in the area will be based on a central system using techniques and equipments reflected in the Service master automation program and/or other existing facilities.

c. The establishment of a Consolidated Telecommunications Program (CTP) as a portion of the DoD fiscal review process has enhanced the scope and level of review for consolidation/automation projects. The fiscal review process has been utilized to deny or increase funding requests dependent upon the information or approvals contained in the master plans and interservice consolidation studies.

3. The report raises a question which has been addressed several times in the past, namely, "what should be the relationship between the

Defense Communications Agency and the Services in the two areas of AUTODIN backbone and attached terminals? " The existing line of demarcation often identified as the "base mainframe" does create some difficulties as identified in the report. However, it appears that in the foreseeable future, this arrangement, with some modifications to existing procedures, may be the most realistic management approach for us to utilize. As you are aware, the user AUTODIN terminals, although they are attached to the AUTODIN backbone system and obtain access to the DCS in this manner, remain under the operational control of the commander served. This is in accordance with the long-standing policy of the Joint Chiefs of Staff which states that "regardless of the source, communications provided to a commander will be under his operational command and will be an integral part of his command and control system." Additionally, the Military Departments (under the Defense Reorganization Act of 1958) retain specific prerogatives in the management of resources necessary to the execution of their assigned missions. In our opinion this would include selected categories (and levels) of required telecommunications resources. This office has a positive and continuing interest (and interjects itself as appropriate) in the allocation of resources. Where common-user interservice systems are concerned the interests of the Joint Chiefs of Staff are involved. This is particularly true where a mission impact can be postulated on organizations, activities or agencies within the chain of command of the Joint Chiefs of Staff. Even in these areas, however, cognizance must be taken of the existence of unilateral military service missions. For these reasons, individual terminals which access the DCS by way of an AUTODIN switch should not be normally considered as being analogous to components of the AUTODIN backbone system and therefore subject to the administrative, management, engineering and resource controls exercised by the Defense Communications Agency (DCA).

4. There is no doubt that significant savings and improved service can result from consolidation of telecommunications centers serving all DoD activities in a given area without regard to Military Service or Defense Agency affiliation. It is toward this end that recent direction from this office to the organization of the Joint Chiefs of Staff has been pointed, and that an effort by the organization of the Joint Chiefs of Staff since May of 1972 has been directed. The subject report is supportive of this objective. It does, however, address several on-going actions where it is believed their efforts will not be completely adequate or satisfactory. Title 10, United States Code 141 assigns responsibilities to the Joint Chiefs of Staff as the principal military advisers to the President, the

National Security Council, and the Secretary of Defense. This fact provides a forum and an opportunity for moderation of differences within the Defense community where they exist, and permits the unique ability for coordinated advice to the Secretary of Defense and this office derived from an appreciation of conflicting needs and varying viewpoints. It is in this area where the Joint Chiefs of Staff can make their greatest contribution to the problem at hand, and it is within this context that initiatives of the Joint Chiefs of Staff have been organized.

5. The subject report expresses the opinion that there are specific inherent weaknesses in the approach by the Joint Chiefs of Staff to achievement of a consolidation program. The consolidation study program has been an intensive, time consuming program which is rapidly nearing completion of the study phase. The effectiveness of the Joint Chiefs of Staff direction and surveillance appears to have been adequate considering the time and personnel available for this effort. As the Joint Chiefs of Staff all-out effort for completing the study phase is nearing completion, it appears prudent for them to finish the remaining studies and reflect the corrective suggestions contained in your report to the degree possible. If our efforts are not as productive as originally envisioned, supplemental revisions and renewed consideration of the GAO recommendations as well as others would appear warranted. Our progress to date, and supplemental consolidation tasking actions, have been satisfactory in several areas. In the event specific facilities or circuits were not addressed in the individual studies, supplemental analyses will be conducted as they are identified.

6. It is unfortunate that the examination represented by the report occurred in the same timeframe with the start of the ASD(T) and Joint Chiefs of Staff initiatives, and thus the specific weaknesses addressed in the report are stated in conditional terms. The first of these weaknesses relates to the fact that the basic studies are performed by the Military Departments, and that the resulting parochialism could diminish effectiveness. The report should indicate that the studies completed in the field are reviewed, and approved or disapproved by the Joint Chiefs of Staff which does not suffer a parochial bias such as that stated to be evident at some field survey locations. A review of the history of several submitted studies reveals instances where studies which were nonresponsive to the consolidation philosophy or eventual goals were returned to the Military Departments by the organization of the Joint Chiefs of Staff with specific instructions for modifications. It appears

at this time that if attempts were made to slant or bias the reports at the field locations they were detected by a higher level review by the Joint Chiefs of Staff. In the event our further review or other information indicates a less than adequate study was made at a site, the study will be revised. Thus it is anticipated that the review process described above will eliminate signs of parochialism which may have become evident during your studies.

7. The second deficiency noted relates to Military Departments' development of terminal facilities which may not be compatible with an optimum configuration for the area. As indicated to your staff and in prior correspondence, there are situations where it is cost effective to install improved AUTODIN terminals well in advance of the scheduled activation of large automated telecommunications centers. These recurring savings may often be realized for several years prior to automation and should be achieved where possible. The program and fiscal review processes addressed in paragraph 2 above are also designed to preclude duplication of facilities in an area and evaluate the worth and necessity of interim installations. In addition, the basic request to the Military Services and the organization of the Joint Chiefs of Staff from the ASD(T) requires the reporting of assets made redundant by consolidation actions. While only time can tell whether these levels of control will prevent a waste of resources, there is no reason to expect such waste will occur, since initial program studies indicate that most resources released can be applied to other less pressing Military Service requirements, or that the costs involved can be amortized in time to permit savings prior to implementation of the optimum configuration for areas involved. The report recognizes that an arbitrary halt to installations would be unwise. We agree and believe the present program will provide results without the necessity for a freeze on present configurations.

8. A third weakness addressed is that the Joint Chiefs of Staff have failed to consider all geographical areas where consolidation of communications terminals is possible. Accomplishment of any objective requires some means of establishing reasonable bounds. The current 54<sup>a</sup> geographical locations throughout the world under study represents essentially the universe of the more lucrative available targets for assessment. There is available in the basic tasking authority for the organization of the Joint Chiefs of Staff to add additional areas where consolidation may prove advantageous, and a number of such additions have been made.

A concerted effort has been made to identify all such locations, and subject to future evaluations which will be conducted, virtually all have been addressed. Although time and circumstance may identify more locations appropriate for study, there are finite limits on the availability of resources for conduct of studies. If anything, the magnitude of the task presently in progress may very well tax the resources which can effectively be brought to bear. There is nothing contained in the conduct of studies to date which precludes additional examinations in the future as the need is demonstrated. The statement is made in the report that "many more should be evaluated." The only example shown of the "many more" is the Washington, D. C. area, scheduled for study when the Pentagon consolidation has been resolved, and the impact of the consolidation on the Washington area requirement can be reasonably assessed. Within current requirements and objectives, the list by the Joint Chiefs of Staff includes all known locations where the opportunities for consolidation promise sufficient advantage for a first round effort.

9. A final weakness noted is the lack of a mechanism for an implementation effort or a consolidated program. An up-to-date review of actions taken by the Joint Chiefs of Staff would reveal that in each case where consolidation was deemed appropriate, implementation was directed either by the Joint Chiefs of Staff or the ASD(T). A final target date for completion of currently directed studies cannot be viewed as a limit precluding future actions. The Joint Chiefs of Staff capability for effective action and responsive advice to the Secretary of Defense should not be viewed as dependent on the availability of a single study team.

(See GAO note, p. 42.)

[1]

11. Reference is made to the page 2, first paragraph statements regarding management structure. The management structure for AUTODIN (centralized control of switches and standards for connection of terminals on one hand, decentralized responsibility for satisfaction of specific customer requirements on the other) is responsive to the nature of message processing technology. It does not necessarily follow that overcapacity results from organizational reasons.

12. It is recommended that the statements in the third paragraph on page [ii] 2 of the report regarding numbers of AUTODIN terminals be revised for the following reasons:

a. The absolute number of AUTODIN terminals is a misleading indicator of cost-effectiveness or determination of compliance with Deputy Secretary of Defense guidance. Intraservice efforts to eliminate dedicated circuits in recent years have tended to increase the number of AUTODIN terminals to accomplish savings in the form of dedicated relays and terminal equipment closed down.

b. The AUTODIN subscriber base has been, and will continue to be, of a dynamic nature during recent years as improved Automatic Data Processing Equipment (ADPE) has come into use in many management and support areas. Additionally, changes in organizational missions and unit relocations will always contribute to changes in the supporting communications media. In fact, data available to the organization of the Joint Chiefs of Staff indicate that the listing referred to on page 17<sup>191</sup> of the GAO Draft Report shows only 20 percent of current subscriber service existed in 1968. However, a measure of the degree to which improved service via AUTODIN has been provided under changing conditions by the use of good management practices within a single Service is shown in the summary of Intra-Air Force Consolidation forwarded as an attachment.

c. The total number of AUTODIN terminals includes many which are not susceptible to elimination through consolidation. A few examples include those which process low-precedence traffic but are geographically remote; those which are closely located but process high-precedence traffic required for real-time operations; and those which require mobility for support of tactical forces. In addition, a number of separately identified line items in the AUTODIN data base represent collocated, dualhomed terminals which provide redundancy for high priority circuits. The proper criterion for judging the cost or mission effectiveness of AUTODIN subscribers is on an individual basis as currently validated through existing procedures rather than upon gross numbers.

[ii]

13. Studies of the telecommunications centers mentioned on page 3 of the report in the first paragraph, with the exception of Sunnyvale, California, and Oahu, Hawaii, have not been finally submitted to the organization of the Joint Chiefs of Staff. Therefore, detailed comments

on these areas are reserved at this time. In the case of Sunnyvale, California, the feasibility study submitted by the U.S. Navy recommended serving U.S. Navy Plant Representative Offices and U.S. Air Force Plant Representative Offices over-the-counter, as suggested by the General Accounting Office. Consolidation on the island of Oahu, Hawaii, has been directed through automation techniques.

[ii]

14. It is recommended that the text of paragraph 5 on page 4 of the report be revised to reflect the advanced stages of the studies addressed therein. To date 54<sup>(a)</sup> studies have been directed. Of these, 24 have been completed and forwarded to ASD(T). In the case of 17 studies, consolidation, physically or by automation, has been directed. In seven instances consolidation was not consistent with feasibility criteria. For the studies completed to date, indicated savings (excluding the Pentagon and Oahu) have been 200 personnel and \$1,000,000 annual equipment costs. It is emphasized that these savings, due to interservice consolidation studies, exclude savings due to unilateral consolidation programs. Fourteen additional studies are in the final stages of coordination and are expected to be completed in the immediate future. The remaining 16<sup>(b)</sup> studies are scheduled for completion shortly thereafter. Due to the large proportion of automation projects involved in the remaining studies, it is not possible to project the ultimate savings. As indicated in paragraph 5 above, it is our intent to review and require revision of the studies as necessary to ensure that they reflect an unbiased appraisal of all valid requirements within the areas under consideration. The GAO comments and analyses of specific areas will be considered. If additional information regarding other areas not addressed in the report is available from your staff, it will also be considered in our evaluations.

15. While there have been deficiencies in the interservice coordination process, it has not been demonstrated that deficiencies in this interservice process have resulted in excessive numbers of telecommunications centers. Of the studies reviewed to date the preponderance of savings has resulted from intraservice consolidations. What is operative in the current telecommunications community is a new tighter standard for validating telecommunications centers. This is also very evident from the areas studied by the General Accounting Office (note that intraservice elements tend to be collocated and consequently susceptible to physical consolidation). It is when automation is addressed, and necessarily larger areas become involved, that interservice consolidation becomes generally feasible. In reality many of the problems of the past were really due to insufficiently



tight intraservice standards for validation - a condition which has been corrected. This office believes the present distribution of authority is most effective, with the possible exception that Services should place additional emphasis on determining and evaluating alternative methods of providing service as part of the validation procedure. This should alleviate fears of proliferating excessive numbers of individual telecommunications centers. The Local Digital Message Exchange (LDMX) (or automation) problem is rapidly being resolved on an area basis through the use of procedures addressed in the preceding paragraphs. Therefore, the GAO recommendation for providing additional authority to a single agency, such as DCA, may warrant additional consideration due to the increased emphasis and review being placed on this and related programs by OASD(T).

(See GAO note, p. 42.)

18. The DCA policy on the use of the AUTODIN Switching Center (ASC) traffic service section terminals centers on the issue that the purpose for its existence is to provide manual service action to messages that the ASC has accepted and cannot process automatically. Its use for other than AUTODIN related messages is prohibited by the manager (DCA) to maintain system integrity and reliability. This policy applies to Andrews, Ft. Detrick, Syracuse and all other ASCs. Therefore, it is suggested that the GAO proposals for having the ASCs process traffic for nearby users be deleted from the report. This is an engineering policy matter.

19. With reference to the identification of "weaknesses" in the Joint Chiefs of Staff study approach, the following points are offered for your reconsideration. It is believed the consolidation studies conducted to date have uniformly resulted in cost and operationally effective configurations. Specifically, any apparent parochialism should be sorted out in the Joint Chiefs of Staff review process. In no case has consolidation been precluded by incompatibility of terminal facilities. While it is believed all potential areas are being studied, advice as to any areas that have been missed is welcome. Once consolidation has been directed existing regulations are deemed adequate.

## APPENDIX I

[18]

20. The study in question on page 29a appears to be Sunnyvale, California, which is now being staffed by the organization of the Joint Chiefs of Staff (OJCS). The OJCS has advised this office that privacy is not an issue in this study.

[29]

21. Reference is made to the recommendations contained on page 44 of the report. As indicated in the preceding paragraphs and in your report, there have been major delays in making the interservice portion of the consolidation/automation program into a viable and effective effort.

We appreciate your review, especially its depth of detail and identification of problem areas which the Department must address on an unbiased and timely basis. We feel that our progress in the past two years together with the management approach outlined in paragraph 2 are providing an effective solution to this problem area. We have embarked on a success oriented approach and, as we evaluate both the interim and final results, we expect to achieve the end objectives outlined in various portions of your study. Therefore, our proposed course of action is to continue our improved program rather than implement the single manager approach addressed in the report.

We appreciate having had the opportunity to comment on your draft report.

Sincerely,



D. L. Solomon  
Acting Director

Attachment a/s

GAO notes: Deleted material relates to data in our draft report which has been revised in this final report to reflect DOD comments. Numbers in brackets are page numbers in this final report.

a

Should be 53, per letter of March 6, 1974, to GAO from Director, TACCS.

b

Should be 15, per letter of March 6, 1974, to GAO from Director, TACCS.

## AGENCY COMMENTS AND GAO's EVALUATION

We brought our findings to DOD's attention on September 10, 1973. We proposed that the Secretary of Defense designate a single manager with the authority, responsibility, and resources necessary for managing the total AUTODIN system, including terminals. We also proposed that the Secretary of Defense direct the single manager to freeze further implementation of automation plans, to the extent economically and operationally feasible, pending his review. We proposed further that the Secretary of Defense direct the single manager to review and evaluate the potential for consolidating terminals and the requirements for automating centers on a comprehensive DOD-wide basis and to take necessary implementing actions.

The Acting Director, TACCS, commented for DOD in a letter dated February 1, 1974. (See app. I.) We have summarized and consolidated DOD's principal comments, together with our evaluation, below.

MANAGEMENT ARRANGEMENTS

DOD said that AUTODIN terminals should not normally be considered part of the AUTODIN system subject to DCA controls because (1) terminals were under the operational control of commanders served in accord with long-standing JCS policy, (2) the military departments retained prerogatives in the management of required telecommunications resources, (3) the Director, TACCS, had a positive and continuing interest in allocating resources, (4) JCS interest is involved in common-user interservice systems, and (5) cognizance must be given to the impact of such controls on military department and JCS mission requirements.

We are aware of the above facts and recognize their importance. Moreover, we believe they are consistent with our proposal to establish a single manager for the entire AUTODIN system, including terminals.

We do not propose establishing a communications command as the single manager. The single manager would be given the authority to determine the best means of providing service after the users' needs are approved at appropriate levels and to designate the organization to be responsible for

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operating and maintaining joint-user terminals. Thus the commanders would continue to determine their requirements to support their missions and to operate and maintain the facilities and the military departments and agencies would continue to fund these requirements.

We believe it is anomalous to apply the JCS policy--that commanders have operational command of their communications--to AUTODIN service, since DCA, not the commanders, has responsibility for the worldwide backbone portion of the service (ASCs and the trunks between ASCs) and the commanders have operational command only of their terminals. Furthermore, even under the DOD-contemplated consolidation program, many commanders would not have operational command of their terminals since joint-user terminals could be operated by another organization.

Because AUTODIN is a common-user system, it is presumed its users have determined that services provided will support their mission requirements. Consequently, we believe that including terminals as the responsibility of a single manager for the entire AUTODIN system can have no adverse effect where the single manager does not determine the mission requirements but merely determines the best means of fulfilling those requirements. In fact, we believe, and the Director, TACCS, agrees, that improved service, as well as large savings, can result from consolidation.

For these same reasons, allegations that the interests of the Director, TACCS, and JCS could be adversely affected do not seem supportable, since they could look to one entity, the single manager, as the responsible organization rather than to diverse entities, as is now the case.

DOD said that the fact that JCS has responsibility, as the principal military advisors to the President, the National Security Council, and the Secretary of Defense, permits moderating differences and coordinating advice from an appreciation of conflicting needs and varying viewpoints when considering consolidating communications centers.

We recognize the need for moderating differences and coordinating advice. Parochialism should not affect how approved needs and requirements are to be satisfied. We see no conflict between the JCS role of principal military

advisors and our proposal to establish a single entity to manage AUTODIN, since such management would be in accord with DOD and JCS direction. In fact, the centralized responsibility we propose should simplify the JCS workload described in paragraph 5 of DOD's comments. (See p. 36.)

DOD said that the AUTODIN management structure was responsive to the nature of message-processing technology and that it did not necessarily follow that overcapacity resulted from organizational reasons.

We agree that overcapacity does not necessarily follow from organizational reasons. However, we believe that this generality does not apply to AUTODIN. The fact remains that many organizations are involved with no single entity's having responsibility for total system management. We believe that a single entity would be much more responsive and would avoid the delays and overcapacities discussed in this report. Apparently, two Deputy Secretaries of Defense have agreed, since they found it necessary to intervene and to direct consolidating of communications centers on a priority basis. The fact that this direction was first issued almost 6 years ago attests to the lack of responsiveness under the current management arrangements.

DOD stated that, although there had been deficiencies in the interservice coordination process, it had not been demonstrated that these deficiencies had resulted in excessive numbers of communications centers. DOD believes that the present distribution of authority is most effective, with the possible exception that military departments should emphasize determining and evaluating alternative methods of providing service as part of the validation process.

We believe that chapters 2 and 3 of this report clearly demonstrate that excessive numbers of communications centers have resulted from deficiencies in the interservice (as well as intraservice) coordination process. We agree that emphasizing alternative methods of providing service--as part of the validation process--should help to limit the number of new communications centers. On the basis of our findings in this and our prior reports, however, we have no confidence that military departments and commands within military departments will coordinate to the extent possible. We

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believe it is clear that a single manager would avoid the delays and duplications existing under the present distribution of authority.

### EFFECTIVENESS OF PROBLEM-SOLVING APPROACH

In its comments, DOD did not specifically address the examples of duplicative facilities and parochialism discussed in the report except for the studies made on the Sunnyvale, California, and the Oahu, Hawaii, areas and the use of ASC service terminals to process traffic of nearby users. DOD said that the Navy's feasibility study for the Sunnyvale area recommended that the Navy Plant Representative Office and Air Force Plant Representative Office (both located at the Lockheed Missiles and Space Company) be served over the counter, as we suggested. DOD also said that privacy (for Navy Z-grams) was not an issue in the Sunnyvale area study.

Although we suggested that the terminals at Lockheed be eliminated, we also suggested that over-the-counter service be provided from the upgraded Air Force satellite test center terminal--across the street--whereas the Navy study team recommended that service be provided from the Naval Air Station at Moffett Field, a much less convenient location. Our solution would also obviate the requirement for installing new facilities costing about \$100,000 at Moffett Field.

To further illustrate the existing parochialism, the Air Force Systems Command's Contract Management Division headquarters took the position that the Air Force Plant Representative's participation in the Navy study would be limited to providing information relative to current operations and that the facility must remain in its present location. The Navy study team advised us of the need for privacy for Z-grams (see p. 18) and told us that there was no common terminology between military departments and that terminology would have to be standardized before terminals could be shared on an interservice basis. Although we agree that privacy should not be an issue, it was an issue in the Sunnyvale area study.

DOD said that consolidation on the island of Oahu had been directed through automation techniques. (See pp. 23 and 24 for our discussion of the Navy's initial study.)

On May 3, 1973, the Navy submitted a revised plan to JCS that recommended a three-phase approach be used for Oahu, as follows:

1. Provide near-term (by July 1974) improvement by consolidating facilities where possible and by extending automated service from existing automated centers to additional remote users.
2. Provide an interim (through March 1975) consolidated-automated system through using existing Navy LDMXs. The stated reason for this phase was to obtain a useful life from the capital expenditures already committed for those facilities.
3. Provide a totally automated and consolidated system using minicomputers by July 1977.

This plan was approved by JCS and submitted to the Director, TACCS, on July 2, 1973. On September 6, 1973, the Director, TACCS, approved the Navy's first phase but directed the Navy to establish an operational test program and direct transition from test program to operating system when the concept had been proved and the transition could be supported economically. The Director, TACCS, concluded that an immediate start on consolidation was necessary "to avoid the uncoordinated proliferation of further automated centers" and "to bring an island-wide systems approach" to the problem.

In the absence of detailed analysis, we do not differ with the Director, TACCS, solution since it calls for two centers, as we suggested, and since minicomputers should provide a high degree of flexibility. As a result of the Director's solution, the existing LDMXs will be removed and the full benefits of their installation will not have been achieved before their removal.

DOD said that using ASC service terminals to process traffic of nearby users was prohibited by DCA to maintain system integrity and reliability as an engineering policy matter. As noted on page 16, ASC service terminals have been used to provide service to nearby users, apparently without affecting system integrity and reliability. Such being the case, we believe that DCA should revise its

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engineering policy to recognize that in some instances, as in the examples discussed, undegraded service can be provided at lower cost to the Government.

DOD said that the effectiveness of JCS direction and surveillance of the consolidation program (and automation, where appropriate) appeared to have been adequate, considering the time and personnel available for the studies of 53 areas--which were rapidly nearing completion. Reference was made to 24 studies completed and forwarded to the Director, TACCS, 7 of which were not consistent with feasibility criteria, which indicated savings of 200 personnel and \$1 million in equipment costs.

We made a limited review of 23 of the 24 studies. Although our review did not permit our evaluating the indicated manpower and equipment savings, we did not question the possibility of such savings. Our review indicated savings of 232 personnel and \$2.6 million from consolidation and savings from eliminating 11 of 15 planned LDMXs in the automation program. However, the question appears to be when and whether the indicated savings will actually materialize. The studies were to be completed by September 1, 1973, but are still not completed.

Our limited review of the 23 studies indicated that:

- 15 studies either recommended no consolidation or required further study.
- The remaining 8 studies recommended consolidations of varying degrees.
- Most studies offered alternative solutions and JCS generally accepted the alternative each military department study team suggested.
- In only a few studies did the Director, TACCS, alter JCS's recommended solution.
- There was some evidence, in the recommendations of the military department study team, of the parochial considerations discussed elsewhere in this report.



- Several studies appeared questionable because they failed to consider alternatives (consolidation of terminals) other than automated systems.
- In many studies, some terminals in the area were not considered or were excluded in the directed consolidation.

DOD did not agree that there were deficiencies in JCS's study approach. DOD's contentions and our evaluations are as follows:

- DOD contended that studies were reviewed and approved or disapproved by the JCS which does not suffer a parochial bias. Any apparent parochialism should be sorted out in the JCS review process.

The presence of parochialism is difficult for GAO and, we think, DOD management to identify. However, we found sufficiently extensive indications of its influence to satisfy us that it existed. (See pp. 13, 15, 17, 18, 23, 46, 47, and 48.)

- DOD contended that in certain situations it was cost effective to install improved terminals before activating LDMXs, although the improved terminal might not be compatible with the optimum configuration for the area and in no case had consolidation been precluded by incompatibility of terminal devices.

We agree that there may be situations where improvement costs could be amortized before installation of LDMXs. However, chapters 2 and 3 of this report give examples of where this was not the case and where improved terminals or LDMXs were unnecessary because existing facilities were adequate or redundant. With respect to compatibility, the JCS study for Oahu cited the following problems associated with the interim step of its proposed solution (although the Director, TACCS, eliminated this interim step).

- Need to provide electrical interfaces between computers (LDMXs) of differing data and input-output structures.

## APPENDIX II

- Need to amalgamate dissimilar peripheral devices with redundant capabilities.
- Need to reprogram software required for intercomputer transfer of information and distribution of operational functions.
- DOD contended that the 53 locations selected for the JCS study included all known locations where opportunities for consolidation promised sufficient advantage for a first-round effort, that these studies taxed the resources which could effectively be brought to bear, and that nothing precluded additional studies in the future when needed.

DOD's contention ignores the opportunities for consolidation discussed in chapters 2 and 3 of this report. Moreover, although we recognize that JCS could require studies at other locations in the future, the fact that the studies were to be completed by September 1, 1973, and are not yet completed attests to the difficulties and delays of the JCS study approach. This fact also supports our proposal for a single, responsible entity. Such an entity would have continuing responsibility--as contrasted with the intermittence of the study group's approach--for bringing about system improvements.

- DOD contended that a final target date for completing currently directed studies could not be viewed as a limit precluding future studies and that existing regulations were deemed adequate to achieve interservice consolidation, once consolidation had been directed.

We recognize that additional studies can be directed in the future. However, the JCS study approach is essentially an ad hoc, after-the-fact, stopgap measure. What is needed is a continuing consolidation program. We believe such a program, to be effective, must be managed by a single entity.

In summary, DOD contends that progress during the past 2 years, together with the three-element management approach (a master automation plan for each military department, the JCS interservice consolidation studies, and the budgetary review process), are providing an effective solution to this problem area.

We have discussed above the deficiencies in the JCS study approach. We have also discussed the problems and delays in interservice consolidation where automation is involved, notwithstanding the master automation plans of the military departments. We agree that fiscal review of the consolidated communications program is an important tool for overview of this expensive and vital resource. Apparently, however, this overview has not been completely successful in view of the duplicative and overcapacity facilities noted in our review and the need for the consolidation program.

# APPENDIX III

## PRINCIPAL OFFICIALS OF THE DEPARTMENT OF DEFENSE

### RESPONSIBLE FOR THE ADMINISTRATION OF

### ACTIVITIES DISCUSSED IN THIS REPORT

#### Tenure of office

From

To

#### DEPARTMENT OF DEFENSE

##### SECRETARY OF DEFENSE;

James R. Schlesinger	June 1973	Present
William P. Clements, Jr. (acting)	May 1973	June 1973
Elliot L. Richardson	Jan. 1973	Apr. 1973
Melvin R. Laird	Jan. 1969	Jan. 1973
Clark M. Clifford	Mar. 1968	Jan. 1969

##### DIRECTOR, TELECOMMUNICATIONS AND COMMAND AND CONTROL SYSTEMS

(note a):

Thomas C. Reed	Feb. 1974	Present
David L. Solomon (acting)	Sept. 1973	Jan. 1974
Dr. Eberhardt Rechtin	Feb. 1972	Sept. 1973
David L. Solomon (acting)	Sept. 1971	Feb. 1972
Louis A. deRosa	May 1970	Sept. 1971

##### CHAIRMAN, JOINT CHIEFS OF STAFF:

Gen. George S. Brown	July 1974	Present
Adm. Thomas H. Moorer	July 1970	July 1974
Gen. Earle G. Wheeler	July 1964	July 1970

##### DIRECTOR, DEFENSE COMMUNICATIONS

AGENCY:

Lt. Gen. Gordon T. Gould, Jr.	Sept. 1971	Present
Lt. Gen. Richard P. Klocko	Nov. 1967	Sept. 1971

#### DEPARTMENT OF THE ARMY

##### SECRETARY OF THE ARMY:

Howard H. Callaway	May 1973	Present
Robert F. Froehlke	July 1971	May 1973
Stanley R. Resor	July 1965	June 1971

Tenure of office		
	<u>From</u>	<u>To</u>

DEPARTMENT OF THE NAVY

## SECRETARY OF THE NAVY:

J. William Middendorf II	Apr. 1974	Present
John W. Warner	May 1972	Apr. 1974
John H. Chafee	Jan. 1969	Apr. 1972
Paul R. Ignatius	Sept. 1967	Jan. 1969

DEPARTMENT OF THE AIR FORCE

## SECRETARY OF THE AIR FORCE:

John L. McLucas	July 1973	Present
Dr. Robert C. Seamans, Jr.	Jan. 1969	May 1973
Dr. Harold Brown	Oct. 1965	Jan. 1969

<sup>a</sup>This position was created in 1970 as Assistant to the Secretary of Defense for Telecommunications. In January 1972 it was changed to Assistant Secretary of Defense (Telecommunications), and in January 1974 it was changed to Director, Telecommunications and Command and Control Systems.

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